

CIA/OSR /MEMO PA 750108 KVASHA ON FUNDING OF SPACE RESEARCH  
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MEMORANDUM

Kvasha on the Funding of Space Research Technology

Introduction

The last two sentences of a footnote in a recently published article, authored by Soviet economist Ya. B. Kvasha, have been cited by [redacted] as evidence that the cost of Soviet space hardware is not included in the official Soviet series on total outlays for science. The sentences read as follows:

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"Finally, a number of scientific research projects give rise to supplementary expenditures outside the sphere of science. For example, capital investments and current costs in connection with production of space research technology."\*

The purpose of this memorandum is to scrutinize Kvasha's statement in the light of [redacted] assertion and of OSR's methodology for estimating Soviet military R&D. OSR operates on the basis that space hardware--except that used for operational space programs such as intelligence, communications and weather satellites--is included in Soviet outlays for science. Accordingly, OSR estimates expenditures for military R&D and space directly from the Soviet science series and then subtracts estimated civil space outlays to derive an estimate of Soviet military R&D. If space hardware is not financed through science allocations, [redacted] on the basis of Kvasha's footnote, the OSR estimate for military R&D would be more than one billion rubles higher in 1974.

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\* As translated in JPRS 62680, Correlation of Expenditures for Science and Productive Capital Investments, 8 August 1974, p. 17 (available from the National Technical Information Services, Springfield, Virginia 22151)

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Kvasha's Access and Knowledge

Before trying to evaluate Kvasha's statements, it is pertinent to consider his credentials as a source of intelligence information on the financing of space hardware. Kvasha is an economist specializing in the field of capital formation and we question whether a person of this professional calling is competent to comment on the financing of space hardware production, a closely guarded subject in the USSR. Given his specialization, there is no reason to expect that he would have any deep or exceptional familiarity with the complexities of the Soviet R&D and space program, especially since such expertise on the subject presupposes access to classified information on military R&D and space financing.

Furthermore, given apparent Soviet restrictions on the publication of information that might reveal the format of the complete Soviet defense-space budget, it is not likely that Kvasha, even if he were privileged to the facts, would be permitted to publish them.

Kvasha's Statement in Context

As is often the case with passages from Soviet writings, Kvasha's statement is ambiguous. Moreover, there are grounds for doubting [REDACTED] interpretation of it. Kvasha certainly does not make a straightforward statement that says what [REDACTED] namely, that the cost of space hardware is not included in the official statistical series on outlays for science. What Kvasha does say is that "capital investments and current expenditures connected with the production of space research technology" (our emphasis) constitute an example of "additional outlays outside the sphere of science" that are occasioned by some types of scientific investigations.

Kvasha's immediate purpose in presenting the statistical table to which the footnote pertains is to show total science outlays as a rising percentage share of Soviet national income. He is

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impressed by the rapid annual growth registered by the science outlays series during the 1960s, but is concerned about whether, in terms of their contribution to overall economic growth, these outlays on science fully justify the opportunities foregone in alternative, more conventional, uses.

#### An Alternative Interpretation

We would argue that in the given context Kvasha is simply saying that, even at 4 percent of national income, explicit science outlays do not reflect all of the costs connected with Soviet R&D. If one were to take account of the full cost to the economy of the R&D program in any given year, one should also consider the expenditure of capital and current resources required indirectly to support the R&D effort. These inputs into science are indirect in the input-output sense; productive resources are consumed by industry in order to be able to supply materials and equipment needed by "science"--including space research programs--instead of being used to support direct growth of the economy.

This interpretation is supported by the following paragraph which appears elsewhere in Kvasha's article:

"In a majority of cases new products having no prototypes require a fundamentally new technology and are manufactured at specially built enterprises with the technology corresponding to these products. Thus, a fundamentally new technology was necessary for development of the initial uranium enrichment scheme using the diffusion method and the new scheme using the centrifuge method, for production of semiconductors, for production of titanium and other rare metals and earths, for missiles, for many products of organic synthesis and for lasers."\*

\* Ibid., p.7-8.

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Conclusion

In summary, we find no conclusive evidence in Kvasha's footnote to indicate that the cost of all space hardware is financed outside of Soviet science outlays. Our estimates recognize that some space hardware is not financed from science outlays--specifically satellites which operate in support of military intelligence, weather, communications or other departmental programs funded by the USSR Ministry of Defense alone or jointly with other ministries.

Further, we recognize that the attempt to delineate categories relating to R&D on an "either-or" basis (e.g., space research hardware is either all in or all out of science outlays) is difficult if not impossible. Soviet accounting practices are diverse and constantly changing. To assume that any single statistic, statement, or example can serve as a basis for universal generalization about actual Soviet practice would be foolish. We do not find that Kvasha's statement sheds any positive light on the financing of space hardware or indicates what change, if any, should or could be made in the OSR handling of the Soviet data. Also, given Kvasha's partisan position on the side of conventional investment versus new technology in this article and the theoretical nature of the discussion, we find it hard to accept his statements on R&D completely at face value.

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